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THE VETERINARY JOURNAL

A Monthly Review of Veterinary Science.

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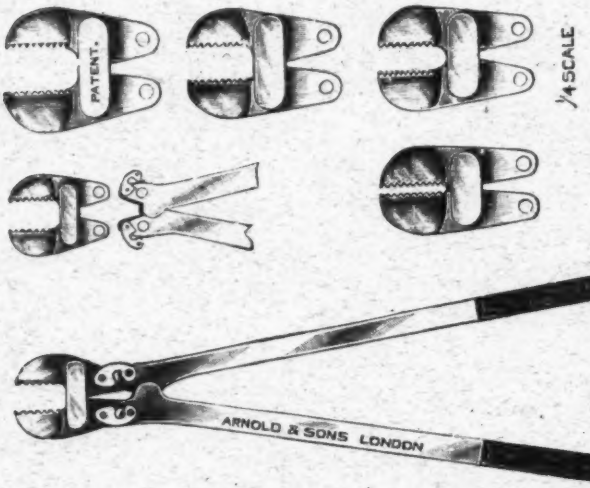

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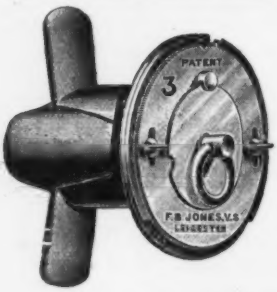

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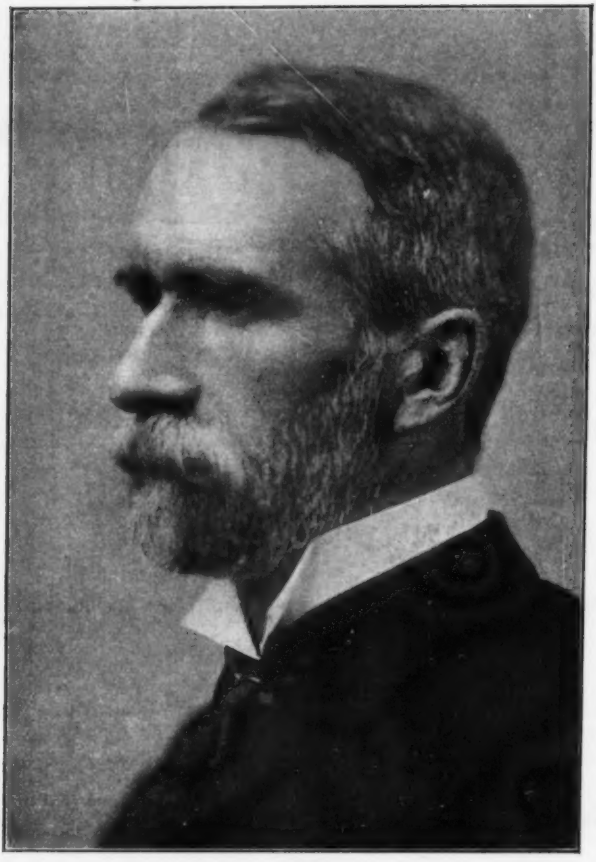

THE LATE EDWARD NETTLESHIP, F.R.S., F.R.C.S.ENG., M.R.C.V.S.

THE
VETERINARY JOURNAL

DECEMBER, 1913.

THE LATE EDWARD NETTLESHIP, F.R.S., F.R.C.S.Eng., M.R.C.V.S.

In the world of science there have been very few more earnest workers than Edward Nettleship, and to his labours we owe much which is known at the present day on the subject of heredity, especially in connection with diseases and variations of the eyes.

Born in 1845, he made his first animal studies at the Royal Agricultural College, Cirencester, and took this diploma in 1863, subsequently lecturing there from 1867-1868 on veterinary science. He then commenced the study of medicine at King's College, and shortly afterwards attended lectures at the Royal Veterinary College in Camden Town, graduating as M.R.C.V.S. in 1867 and M.R.C.S.Eng. in 1868. Deciding to take up human medicine and to specialize in ophthalmology, he obtained the appointment of Clinical Assistant to Dr. Jonathan Hutchinson, at Moorfields Hospital, and in 1870 graduated F.R.C.S. His great skill in ophthalmic work soon got him a wide consulting practice, and in 1875 Mr. Nettleship was called upon to make a report to the Government on the subject of ophthalmia in pauper schools; whilst in 1910 he was appointed a member of the Government's Departmental Committee on Sight-tests. He held at various times the positions of Consulting Ophthalmic Surgeon to St. Thomas's Hospital, the Royal London Ophthalmic Hospital, and the Hospital for Sick Children in Great Ormond Street. Probably his most noted patient was Mr. Gladstone, upon whom he successfully operated for cataract.

His scientific work, shown in writings and in research, brought for him, in 1912, the F.R.S., as in that year the Royal Society conferred this honour upon him. In veterinary work, pure and simple, his name was not much known, but in the study of albinism in dogs he had made many experimental observations, and a paper on "Blindness from Optic Neuritis in Cattle" was contributed to the columns of the Veterinary Journal only as recently as October last.

Reserved and retiring in disposition, it was only when one gained his friendship and confidence that the true friendliness of his character was brought out, and had he lived there is no doubt that the profession would have heard more of him, as several contributions of great scientific interest had been promised.

Although out of active practice his mind was ever working to elucidate the mysteries of life, and when he had attained to such eminence in science and human medicine he many times freely acknowledged the help which a knowledge of the animal world, obtained through his veterinary diploma, had given him, and the readiness with which he gave support to the forthcoming International Veterinary Congress showed that he still had practical sympathy with his veterinary colleagues.

Editorial.

"OVERSTOCKING" COWS' UDDERS. IS IT CRUEL?

By "overstocking" cows' udders, as doubtless most of our readers are well aware, is meant the practice carried on by some cattle dealers and others of leaving milch cattle unmilked for a longer period than usual, in order that they may have the appearance of being heavy milkers. Recently the Royal Society for the Prevention of Cruelty to Animals has prosecuted several owners, against whom it was alleged that they had cruelly ill-treated cattle by allowing them to be overstocked. In one case the magistrates convicted, but their decision was quashed on an appeal to Quarter Sessions, the Recorder declining to state a case. In another case the magistrate found that there was "overstocking" and that the cow suffered pain, but because it was an old-established custom in the district they dismissed the summons. In this instance the case was taken to the High Court (King's Bench Division), and, after a hearing by three judges, the case was unanimously remitted to the justices with a direction to convict. It will thus be observed that the legal aspect of the question is somewhat unsatisfactory.

For the present, however, we can leave that question to the specialists in law, and turn to that aspect of the case which more closely concerns us as veterinary surgeons, namely, as to whether the practice is either cruel or detrimental in any way to the cow. There should really be no indecision in the matter.

and no two opposite opinions, at any rate so far as freshly calved cows are concerned; yet when such cases are brought into court one invariably finds veterinary surgeons on both sides, some giving the opinion that there is pain and suffering produced, while others state that there is no pain and therefore there can be no cruelty in the practice.

There can be no difference of opinion as to the primary facts of the case. A cow in full milk is usually milked at fairly regular intervals if it is desired to get the best milk yields. It is not always possible, however, to divide the day into two equal periods of twelve hours owing to the times required to get the milk to its market, and probably a ten or eleven hour day and a fourteen or thirteen hour night are more customary. Beyond that time, especially in heavy milkers and newly calved cows, the udder becomes somewhat distended and the cow certainly uncomfortable. If that condition is continued, the discomfort just as certainly becomes pain. It is true that no arbitrary line can be drawn as to when that discomfort becomes pain, but such symptoms as paddling of the hind feet, a hard or distended udder, blowing respirations, and grunting, assuredly indicate pain in a cow that has gone far beyond her usual time of milking. In our opinion no freshly calved cow should be allowed to go longer than fourteen hours between milkings, and, if possible, the period should not exceed twelve hours. Moreover, irregularity of the intervals between milking prejudicially affects the milking capacity, and if "overstocking" is carried on very far it may even produce mammitis, in either case reacting inimically to the best interests of the dairyman.

Then, is it necessary? Practical dairymen and judges of milch cows are unanimous in their view that it is not possible to fairly judge a cow's udder if she has been recently milked and that she is best judged ten or twelve hours after milking; that is to say, the udder must be reasonably "stocked." We have never yet heard of one such judge saying it is necessary to "overstock" the udder to judge it. Consequently, we are of opinion that if it is intended to send a cow to market without milking her out that morning, she should at any rate be milked late on the previous evening and not in the middle of the afternoon, leaving a period of eighteen or twenty hours before she is next milked after being sold. The long interval can and should be avoided.

"Overstocking," then, must be regarded as painful and unnecessar. . and inimical to the best interests of the cow and the farmer. It is a practice that should certainly be discontinued.

THE HUNTING MEMORIAL FUND.

In our last month's issue we published an obituary notice of Mr. William Hunting, and in that we gave sufficient evidence of the fact that his earnestness had done much to further the advancement of the profession.

By the wish of a number of friends it is proposed to establish a Memorial Fund, the subscriptions to which shall be expended in some way worthy of perpetuating his name; perhaps, in the form of an annual lecture, to be delivered in some veterinary school; perhaps, in the form of a bursary or scholarship for the benefit of the student.

A Committee has been formed to carry out this object and a report of the first meeting will be found on a later page. We have every confidence in saying that the object will commend itself to our readers and receive every support from the profession.

MILK PRODUCTION OF THE GOAT.

Dr. Weber comes to the following conclusions from observations conducted at the Dresden College:—

(1) The milk production of a goat during one lactation period reaches an average of 500 kg. (about 110 gallons).

(2) The average fat content of goat's milk is from 2·6 to 2·7 per cent.

(3) Change in feeding has no marked influence on the quantity and fat contents of goat's milk. (Green feeding and grazing did not come into the scope of the experiments.)

(4) In milk capacity the Swiss goat has nothing to be preferred to the Saxon Erzgebirge goat.

(5) With the advance of lactation the quantity of milk decreases, as with the cow, but the fat content does not ascend regularly, but moves in irregular variations up and down.

(6) In goats also milking qualities are an individual peculiarity which by much concentrated diet can only be imperceptibly influenced.

(7) A goat gives about ten times its body weight in milk.

(8) The duration of the lactation period in goats is about ten months.

(9) In most police milk regulations at least a fat content of 2·7 to 3 per cent. must be reached, but in the case of goat's milk it may be reduced to 1·7 to 2 per cent.—*Deutsche tierärzt. Woch.*

General Articles.

FOOT-AND-MOUTH DISEASE IN MAN—APHTHOUS FEVER.*

By C. M. O'BRIEN, M.D., L.R.C.P.

Physician to City Hospital for Diseases of Skin and Cancer, Dublin; Honorary Member of the Dermatological Society of France; Fellow of the Medical Society of London.

Amidst the grey routine of my daily grind it has ever been my wont to bring under notice of the profession things within my purview which appeared to me of interest to it. I am happy in the belief that my humble efforts in this respect have been fully justified by reason of the full, free and unfettered discussion which they invoked on each occasion. Actuated by this spirit, I bring the report of this case before you to-night, in order to place on record notes of a cutaneous affection which falls to the lot of few to meet.

The epidemic of foot-and-mouth disease in cattle which swept this land from shore to shore in 1912, and which created such financial havoc and black despair amongst a large portion of our population enables me to relate my only experience of this malady as it affects mankind. Although the statement at first sight may seem somewhat paradoxical, it is, nevertheless, true to say that perhaps the most interesting feature associated with foot-and-mouth disease in man is the paucity of its bacteriological literature, and in search of this literature the point above all others which impressed me most is, that in an age like the present, of modernism and medical research, how little, after all, we are helped towards a positive diagnosis in this as in many other cutaneous affections by other than those senses which are the heritage common to all, and which served Æsculapius in such good stead long before the death of Grecian priest-craft and even the dawn of medical history. It would appear that the first reliable record of foot-and-mouth disease in man was made in 1695, by Valentin, of Hesse. In 1834 three Continental veterinary surgeons named Hertwig, Mann, and Villain, while investigating the disease in cattle, wished to know if it were communicable to human beings, and as an experiment voluntarily

* A paper read before the Section of Medicine, Royal Academy of Medicine in Ireland, January 31, 1913. Reprinted from the *Medical Press and Circular.*

drank a quart each of the milk from a cow suffering from the infection. On the second day Hertwig suffered from fever, headache, and itching of the hands and fingers. Five days later vesicles appeared on the fingers, hands, tongue, cheek, and lips. Mann and Villain developed vesicles on the buccal mucosa. In 1896, during an outbreak of foot-and-mouth disease in Berlin, several instances of its spread to man were reported, and unhesitatingly confirmed by Virchow, after an investigation which for minuteness and completeness of detail could not fail to influence the most sceptical.

A child fed on milk of diseased cows had chill and fever with gastric disturbances, and later an eruption of vesicles on lips, tongue, and the clefts between fingers and toes. A shepherd infected himself by holding in his mouth the knife with which he had pared the diseased feet of sheep. In 1883, Sir Charles Cameron, C.B., M.D., Chief Medical Officer of Health for Dublin, during the epidemic in this country of foot-and-mouth disease in cattle had under his care a man who contracted the disease through direct inoculation. He presented a rash on both feet and hands which developed into vesicles later. The throat, lips, and mucous membranes had also distinct vesicles. About the same time Sir Clifford Allbutt saw the buccal eruption in three children during an epidemic of foot-and-mouth disease in Yorkshire.

Cases of infection through butter made from infected milk are on record, of which the following is a good illustration:—

On November 18, 1890, a veterinary student in Berlin had sent to him by his brother-in-law a packet of fresh butter made from the milk of cows suffering from foot-and-mouth disease. On the following day he ate some of the butter for the first time. During the next night he was feverish, and on the morning of the 20th he found his lower lip red, swollen, and covered with vesicles which were itchy. Later the vesicles spread to the buccal mucosa.

Similarly, Schneider gives cases caused by infected cheese, and Friedberger cases from virulent buttermilk. Instances of infection by inoculation have been observed, of which the following is perhaps the most interesting and instructive, and as it presents many points in its clinical history which resemble the subject of my paper, I am induced to give full details as they appear in the *Veterinarian*, 1831:—

The patient was a farmer who had injured one of his fingers in drenching a cow suffering from foot-and-mouth disease. The wound took on an unhealthy action, and after some days he was taken ill with a cold shivering fit. This occurred in the evening, and by the following morning the cold fit had been succeeded by fever. Twenty-four hours later vesicles formed on the gums and tongue.

Instances of transmission of the virus of foot-and-mouth disease from lower animals to man both by inoculation and otherwise could be further multiplied if time allowed or necessity demanded, but I feel convinced there are few if any serious thinkers amongst us to-day who entertain much doubt upon this particular point. For myself I candidly own that if at any time in my career I entertained the least doubt as to the transmission of foot-and-mouth disease from lower animals to man that doubt is dissipated for all time by the undermentioned case, notes of which *tout ensemble* constitute a clinical picture not easily counterfeited.

Case.—G. J. B. consulted me in my study on August 12, 1912. He now permits me to publish the following:—

Veterinary Inspector, Irish Agricultural Department, M.R.C.V.S., aged 35, married. Family history—unimportant. Personal history—of temperate habits; had scarlet fever at the age of 10. Otherwise he always enjoyed very good health. On July 9, 1912, while in discharge of his duty as Veterinary Inspector to the Irish Agricultural Department, he was bitten by a sheep on the index finger of the left hand while examining the beast for suspected foot-and-mouth disease on an infected farm at Swords, Co. Dublin. Having applied an antiseptic dressing to the wounded finger and used a thin rubber finger-stall as an additional protection, he continued his daily examinations without intermission, not anticipating any serious results. About three weeks later the wound appeared to form an abscess, to which the patient applied an abscess knife, with every antiseptic precaution. There was no pus found; the local pain and tenderness continued and the wound did not heal. As his colleagues of the department were all fully occupied coping with the outbreak, and as his services as a result were badly needed, he declined to lie up. On the morning of August 11, redness and swelling appeared on both hands and fingers, accompanied by great itching of the parts,

with a few small raised white swellings like little lumps under the skin, especially round the nails. By night-time slight itching of the upper part of both feet, accompanied by a sensation of pin pricks in the soles, which became more pronounced when walking. He also complained of feeling out of sorts for a day or two previously. Bowels were confined; slight headache was present, with loss of appetite, and some colicky pains.

Having received the foregoing particulars I proceeded to examine the patient. A thick, well set up man, about 5 ft. 6 in. in height, of exceptionally good muscular development. Rather younger in appearance than stated age. The fingers and dorsal aspect of both hands were markedly swollen and covered over with a dull, reddish, raised rash, which stopped short somewhat abruptly an inch above the wrists. Examining closely, immature vesicles were observed here and there over the surface of the rash, more especially in the clefts between the fingers and immediately above and around the finger nails. A sensation of great itching over this region was complained of. On removing the dressing of the injured finger, the edge of the wound gaped, and although no pus exuded on pressure, nevertheless it exhibited few signs of healing. There was no perceptible involvement of the lymphatic glands. Examination of the throat exhibited congestion of the fauces with some vesicles. Vesicles were also observable on the inside of the lips, gums, and side of the tongue. The latter appeared swollen and tender. Mastication, deglutition, and talking were painful. The saliva was increased and the voice less distinct than normal. The temperature registered in the mouth was just 100° F., and never exceeded this during the entire illness. The urine was high-coloured, of acid reaction, specific gravity 1020, sugar and albumin absent. The heart, lungs, and other organs appeared quite normal. The patient complained of increasing itchiness over the dorsal aspects of both feet, and excepting a slight redness above and inside both knees, no rash was perceptible on lower extremities at this stage. But there was a sensation of sharp pin-pricks over the soles of both feet, rendering locomotion troublesome. Knee-jerks were normal, ankle-clonus present.

Condition of patient on August 13, 9.30 a.m.—Excepting the slight rash on inside of thighs, which has now entirely disappeared, all the previous symptoms are more pronounced. Vesicles

fully formed about the size of peas on lips, tongue, and fauces. Saliva trickles from the mouth. Swallowing and speaking more painful, while in addition the dorsal aspects of both feet present a rash precisely similar to that previously described on hands, the rash extending to ankles, and stopping short at this point on both feet. Vesicles in process of formation are also observable between the clefts of the toes and around the toe-nails. Temperature 99·5° F.

The same evening the patient was seen by Sir Charles Cameron, C.B., M.D., in consultation with me. Vesicles were present on the throat, the side of the tongue, the fauces, and inside of the lips. The contents of vesicles which in the early stage were clear had now become somewhat turbid. In some instances the vesicles on mucous membranes had coalesced and ruptured, leaving small shallow ulcers with dark red base. Sir Charles Cameron, after a careful examination of the patient, said the case presented symptoms precisely similar to a previous case of foot-and-mouth disease in man which he met with in the epidemic of 1883. Saliva continued to trickle from the patient, and the painful swallowing permitted now of liquid nourishment only. The progress of the case continued without alteration—the temperature remaining between 99° and 100° F.

On August 15 the rash on the hands began to fade, the vesicles ruptured, and further vesication ceased, but the soreness of the throat and free flow of saliva continued for some days. On August 17 Sir Thomas Myles, F.R.C.S., saw the patient in consultation with Sir Charles Cameron and myself. This was the seventh day of the illness. Fresh vesicles had by this time ceased to appear, and only the remains of previous ones were in evidence on the throat, lips, and both feet. These, with the copious saliva and difficult deglutition, were the only data to guide us now. Sir Thomas Myles examined the patient's feet, throat, and hands very minutely. He also examined the wounded finger. He said that as a result of his examination, from all he had seen, and from the history given by the patient, he believed the case to be one of foot-and-mouth disease, but seeing it on the seventh day after the acute attack, it was impossible for him at that stage of the illness positively to confirm the diagnosis.

It is agreed that neither sex nor age, race nor class, affords exemption from foot-and-mouth disease. It is also agreed,

thanks to the research and logical deductions of Loeffler, that the bacillus, virus, or whatever it may be termed, which causes foot-and-mouth disease, is sufficiently small to allow of its passage through the finest pored porcelain filter, and to elude the most powerful microscope. Like the biblical grain of mustard-seed, this virus or bacillus gives rise to results in man which have taught me the lesson derived from personal observation and experience, that apparently slight cases, if neglected, may lead to grave results. Whether these results depend on tissue changes effected by the direct action of the bacillus or its toxins, are questions still in the womb of time.

In conclusion I take this opportunity of expressing my indebtedness to Sir Charles Cameron. From all the literature within my reach (both local and foreign) bearing on this subject I think I am correct in saying that Sir Charles has the unique distinction of being, not only the only medical man in the United Kingdom, but the only medical man alive to-day who can speak from practical personal experience of two separate cases of foot-and-mouth disease in man due to direct inoculation from the lower animal, one so far back as thirty years ago, during the epidemic of 1883, the other which is the subject of the present paper. I am also indebted to Sir Thomas Myles, M.D., F.R.C.S., whose examination of the patient excludes any ambiguity in diagnosis which might arise from a surgical standpoint. I also thank Mr. T. T. O'Farrell, F.R.C.S., Bacteriologist to the City Skin Hospital and to St. Vincent's Hospital, for his examination of the epithelial *débris* and contents of vesicles, with negative results. My thanks are in an especial manner due to my former patient, Mr. George J. Bell, M.R.C.V.S., who in the cause of veterinary and medical science permits me to bring before the Royal Academy of Medicine in Ireland, this case, which is, as far as I know, the first published case of its kind in Great Britain.

LITERATURE.

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"DOPING" AND THE RESEARCHES OF BRU AND ROBERTS.

By I. S. C.

It is strange that the practice of administering stimulants to racehorses has not received more consideration in England, the home of the "Sport of Kings," and where also the love of fair play is such a pardonable boast.

At last however certain recent legal proceedings have brought home to us the fact that doping is in common use as a means of unnaturally forcing to the uttermost a racer's powers, in a ruthless determination to win the coveted stakes and the collateral wagers, no matter at what expense to the "noble animal" himself.

The harmful effects of such over-stimulation of individual racehorses must have far-reaching consequences on the physique of the whole breed, the services of winners, as stallions, being so highly prized. If performances should be merely the results of doping, expectations would obviously be all too frequently falsified. Moreover, this fraudulent practice would eventually lower our high standard of performances. Degeneracy would inevitably set in, for illegitimate methods of securing priority at the winning-post would have to be universally adopted if they were openly allowed to succeed in a single instance.

However, doping has been declared illegal and disqualifying—happily for the future of racehorses, as well as for the pockets of their uninitiated backers, whose confident calculations can so easily be stultified through the introduction of the uncertainties of doping.

The elimination of this avoidable element of insecurity, where the inevitable uncertainties are already so many, must be a matter of satisfaction alike to the rich heavy plunger and to the humble labourer-sportsman who is ready to risk his last hard-earned shilling in backing the favourite.

It remains for our veterinarians to familiarize themselves with all the symptoms of doping in order that they may be equipped with the requisite facilities for detecting the effects of the various drugs which can be used in the fraud of doping.

A lead in the way of this necessary investigation has been

given to us by our highly scientific and logical Continental colleagues.

With a view to studying and determining methods of discovering the fraud, two French veterinary practitioners, Messrs. Bru and Roberts, recently subjected several horses to experiments in doping with heroin, morphia and cocaine, the drugs most usually employed.

They then contributed to the *Révue Vétérinaire* a long account of their researches. This article is re-echoed by the Italian doctor Luigi Orlando in *La Clinica Veterinaria.*

A salient fact that has been established through the French scientific researches is the great difference in effect that the same drug has over horses and dogs; the latter particularly exhibit the secondary—the narcotic property—of morphia, while horses exclusively demonstrate the primary—the stimulative property—of this drug.

Everyone knows that man, when under the influence of morphia, exemplifies its dual action, which is first stimulative and secondly sedative; but the dog exhibits the secondary effect almost from the first, and the horse never gets farther than the primary stage. He is exclusively stimulated for as long as the action of the alkaloid may last.

It is this fact which makes morphia and its derivative heroin such powerful allies of the unscrupulous horse-trainer. Through repeated experiments he can ascertain the exact dose which his equine victim can profitably carry. This varies greatly with individual animals. The administration can be timed to a nicety for the duration of the race and to last out the public appearance of the horse; but afterwards, when the reaction sets in, the privacy of the stable sees the poor beast's collapse.

"He refuses all food, accepting only water; his heart beats feebly, irregularly; his pulse is imperceptible." In a particular case: "Four days afterwards the symptoms had abated, the normal state of health was being gradually re-established, but the appetite remained capricious."

This description is quoted from the account by Messrs. Bru and Roberts of an experiment of theirs with heroin, a new and very active derivative of morphia, which is greatly used in doping.

They had hypodermically injected a seven-year-old horse (500 kilos in weight) with 35 cg. of the drug. This was mani-

festly an overdose, 5 cg. having previously been tried on a mare of the same size with quite sufficient effect, judging from the following passage:—

"An hour after the injection the first signs of excitement were apparent." They are thus enumerated:—

"The action is automatic. The gaze is fixed. The tail is raised. The muscles are contracted. The animal is very impressionable, hyperæsthesia being very evident. The ordinary sounds of the stable are sufficient to awaken uncontrollable reflex manifestations. The subject, who is by nature docile and quiet, has temporarily taken on the appearance of a highly strung thoroughbred. The salivary secretion is diminished, the mouth is dry, although drink is refused. At the point of injection local sweating persisted. This was caused by the direct action of the injected alkaloid over a superficies a little larger than a five-shilling piece. This phenomenon is important because it betrays the fact of an injection having been practised. This method of administering drugs is usually favoured because, though oral or rectal dosing is possible, the absorption is slower and more variable, being dependent on the emptiness of the intestines. In the experiment with the greatly increased dose the symptoms began much sooner, and they were so much exaggerated as to become 'alarming.' The horse's automatic, violent, blind gallop had to be forcibly stopped, and antidotes, purgatives, and sedatives had to be administered, a hypodermic injection of pilocarpine serving to hasten the elimination of the alkaloids and to curtail the period of excessive intoxication.

"Twelve hours after the heroin had been administered the violent symptoms ceased."

This animal apparently recovered, but some weeks later he died of acute podophyllitis (foot disease). The interesting autopsy amply demonstrated the evil effects of doping: "The heart was enormous—double its proper size—and the myocardium was twice as thick as it should have been." This condition shows that in doping the heart is greatly overworked, its beats being violent and hurried. The muscles are tense, the cerebral excitement constrains the horse to go automatically, indiscriminately, for vision seems to be abolished. The respiration being fuller, a sustained and unmeasured effort is rendered possible, so that he will race more rapidly than when in the normal state; in fact, "he will give out more vital force than his

physiological resources properly allow, hence he will be quite exhausted after a race, and the heart rapidly becoming worn out, a repetition of former exploits will soon be rendered impossible."

"The drugs that affect the nervous system all work much in the same way. They begin by increasing, and end by paralysing the activity of particular nerve centres. Each of these phases is long or short, according to the dose, and according to the kind of animal under treatment."

"Injections of chlorate of morphia especially affect the encephalon, the bulb and the medulla being only affected secondarily."

This fundamental action on the brain perhaps explains the relative susceptibility to morphia of man, dog and horse. In the former "small doses (0·1 to 5 cg.) produce a certain excitement which is often sought after by neuropathics, who find in slight morphic intoxication pleasurable sensations, gaiety, hallucinations, increase of memory and imagination, a feeling of enhanced muscular power; but this phase is followed by depression with hypnotic phenomena."

Dogs can take far more morphia than man, to whom 6 cg. may prove fatal, while a dog weighing 10 kilos was proved able to survive 50 cg., though the consequent narcosis was very profound.

This secondary phase being absent in horses, their brains are presumably less impressionable than those of men, or even of dogs, in the particular parts especially affected by the secondary action of morphia and similar drugs. An explanation is thus afforded of the horse's idiosyncratic way of responding to injections of nerve stimulants, which makes him such an excellent subject for "doping."

For the same reason "it is illogical to treat colic in horses with morphia or to associate morphia with chloral in order to produce anæsthesia, for the morphia greatly agitates the horse during an operation, and the chloral renders him unable to get up after it. This happens too often through the thoughtless use for horses of prescriptions only suitable for men." Thus comment Messrs. Bru and Roberts.

Cocaine is also much used for doping, but though it is a powerful dynamic agent, augmenting for a time the muscular force, its effect is more transient, and its administration therefore

demands even more exactitude than that of heroin and morphia. Injections can only be depended on to work for a specified time.

"If the dose is too strong depression and adynamia sooner or later ensue. . . . Sometimes under the influence of cocaine a horse will stamp so violently as to fracture the phalanges where there is osteitis."

The following symptoms characterize the action of cocaine:—

"A great flow of saliva; sweating, first localized at the point of injection; dilatation of the pupils. The simultaneous presence of such conditions should arouse the suspicion of doping," a practice which cannot fail to be severely censured by the veterinary profession.

But even if, as sometimes happens, doping can be diagnosed at a distance by the characteristic hyperexcitability alone, it is necessary to make absolutely sure before any accusation can be made, "as it is possible for very nervous horses to behave in a suspicious manner when in the company of others and when naturally excited at the moment of a race."

Only quite recently has it become possible to ascertain actually whether a horse has been doped or not.

The fraud can now with certainty be revealed through the method which M. Kaufman imported from Austria, and which has been adopted in France and Italy. It consists in a test of the saliva, which always very quickly eliminates alkaloids, and which is more easily collected than the even more eliminatory urine. By means of a pad of cotton-wool a specimen of the winner's saliva can be obtained immediately after a race, and subsequently this can be examined at leisure.

Fröde's testing preparation will reveal the presence of morphia and heroin; that of cocaine can be detected through Fereira da Silva's reagent.

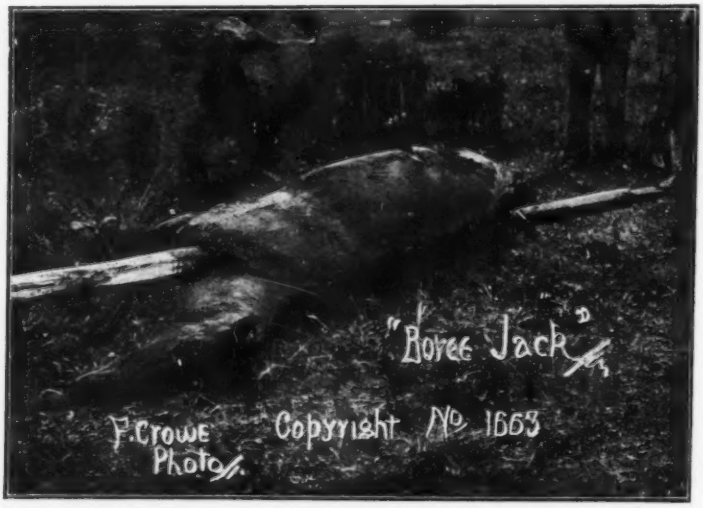
The tests employed by Kaufman are kept secret lest they should by any means be counteracted, so there is no longer much chance for doping to escape exposure if veterinarians are all on the watch for it, and, as Dr. Luigi Orlando says, "Racing Associations can never be too vigilant in the suppression of the fraud of doping."

A TERRIBLE ACCIDENT TO A RACEHORSE.

By F. B. EVE, M.R.C.V.S.
Folkestone.

The enclosed photograph was sent to me by a friend in Australia, and is, I imagine, unique.

A racehorse, whilst finishing the course on the West Wyalong (New South Wales) race-course on October 2 last year, ran into the end post of the fence on the inner rail (a sapling 14 ft. in



length and 3 in. in diameter), and this entered inside and under the shoulder-blade, the impetus carrying it right through the body and causing the pole to protrude for fully 3 ft. beyond the hip. The horse swayed for a few moments and then fell dead in full sight of numerous horrified spectators, the body afterwards being photographed where it lay.

CAPONING.

By HAROLD LEENEY, M.R.C.V.S.
Shepton Mallet.

This operation is said to have been performed in China from time immemorial. The manner of it is characteristically cruel. Castration of cocks was for a long time practised in Surrey, in the original home of the five-toed Dorking, but fell into desuetude owing to the great number of fatalities, and the general neglect of poultry in the middle Victorian period, and before the agricultural slump came which led to investigation of what the shopkeeper calls "side lines," which can be turned to profit. In the latter part of the last century, when the ripping open of the abdomen and tearing out of the testes with the fingers had been left to three old women near Dorking who were the sole repositories of the art, a new star arose in the middle-west of the U.S.A., and caponing, together with rig castration and other new methods of emasculation were introduced. It is to our credit as a profession that we welcomed instruction from an amateur or unqualified man, who did not pretend to be a veterinary surgeon, but could show us much that was valuable, and has been incorporated into our system since. *Inter alia*, one may be permitted to remark that "good *can* come out of Galilee," and that the attitude too often assumed by the high priests of science is as unworthy as that of the Sanhedrin.

Some notes in this Journal in regard to ostriches provoked a smile when the information was given, as a new discovery, that the feathering of birds is altered by removal of the essential organs of reproduction. That great naturalist, the late Mr. Tegetmeier, called attention at least fifty years ago to the male plumage of hen pheasants resulting from gunshot wounds affecting the ovarium or egg clutch. The common result of emasculation of male birds is to arrest the development of the typical cock feathers. The hackles do not develop to the same extent, and the comb and lobes are smaller, as a result of early operation. They do not change if done late, or drop off in ten days, like the antlers of buck when emasculated. The effects of unsexing in the case of horses, cattle and swine are, of course, familiar to us all, but it may not be so generally known that depriving the cat of the ovaria causes her to grow a "tommy"

head, and that, whichever sex is made neuter, influences conformation and features in the direction of the opposite sex. The effeminate head of the gelded cat is familiar, but the "tommy" head of the "fourth" sex is not perhaps. But to return to our muttons. The practice of caponing has for its object the enhanced value of the bird submitted to operation. The objectors have said that cockerels segregated from feminine influence agree perfectly well, and that there is no need for operation. With the first part of the statement practical poultrymen will agree. That capons attain to much larger proportions is only known to those who deal in them. Caponing is best performed during the months of August, September and November, when cockerels are cheap and unruly and will fight among themselves and worry the pullets—"will not rest themselves or let anyone else," as it has been said. When castrated they can be allowed in any company. They are no longer combative, but usually found together, and as much despised by the females of the flock as eunuchs are by the ladies of the harem. They are disposed to sit about when not seeking food, and this, of course, favours growth and development of certain parts. The muscles used in combat are not among them, for the head and neck takes on an effeminate appearance, but the rump expands, and the poulterer knows in a moment whether a fine grown cockerel or a capon is offered him. At the time of writing, Leadenhall prices for the former are 3s. 6d. to 4s. 6d. each, and for the latter 7s. 6d. to 8s. 6d. These figures are sufficiently eloquent, and we need not labour the question as to the value of the operation.

The Method of Operation.—Any description is unsatisfactory. A demonstration is most desirable. True, one can teach oneself. The present writer did so, but finds much satisfaction in showing pupils how to avoid his errors. It is essential that the birds should be well fasted. A period of thirty hours is desirable, as by that time the intestine is more or less collapsed as well as empty, and a view of the testicle can be obtained when it is desired to remove it. The subject is stretched upon a table after the manner one extends a sow pig for spaying. In the absence of help, one may suspend a bottle of water from the butts of the wings and the legs, in order to secure the subject. Then the few small feathers between the last two ribs and the point of

the hip may be plucked, and the operating site exposed. This is between the last two ribs. With a clean incision the skin and intercostal muscles are divided. As with castrating animals, a bold sweep of the knife causes less hæmorrhage than a feeble funky pricking at the tissues, and there is no risk of puncturing the bowel if the fasting period has been observed. If the incision is made high enough up there will be found a V-shaped opening in the peritoneum, and under this the surgeon introduces his scalpel, with cutting edge upwards, and divides the membrane for the full length of the wound. This gives a view of the testicle when the spreader or gridiron instrument has kept the ribs apart. Then one has only to introduce the spoon-shaped forceps and seize the organ in order to bring it out. It is well for beginners to squeeze the testicle out of its investments, rather than to break the vessels by throwing the hand aside, as one does when confident and with a large number to get through in a given time. Hæmorrhage is thus avoided. The bird is then turned over and the same process gone through in order to reach the other gland. It is much less trouble and more safe to operate on both sides than to seek both organs from one side. The bird is then liberated, and will generally try to recoup himself by swallowing the missing testes if some soft food has not been provided in anticipation. The appetite is not in abeyance, and the subject takes no notice of such a trifling incident in his career.

Sequelæ.—If a bird is going wrong it will be immediately. The rupture of a great vessel is followed by tumbling head over heels like one whose neck has been broken. He may be washed out with vinegar and hung up in the larder to be eaten like any other fowl.

During the summer now past I had but one bird tumble over, and while seeking some water altered my mind and roused him with ammonia. In a few minutes he fed with the rest and throve as well as any subsequently. Nothing should be done to the wound. It quickly seals with a clot. The only trouble experienced is a blowing up of the flank in a few cases. The remedy is to prick the skin and let the air out. The bird is not inconvenienced in any way if this is not done.

Country practitioners desirous of adding a few pounds to their income should do a few birds and place them out to board,

or show specimens, as a district soon learns the value of capons, and salesmen are glad to buy at greatly enhanced prices. The caponer will not, of course, choose the Mediterranean types for making big capon, but go for Plymouth Rocks and first crosses of Indian game and Dorking, or the now popular Sussex fowls. It may be mentioned that "fine Surrey fowls," which are always quoted at the top of the market, come from Sussex, and chiefly from the district known as "The Dicker," where caponing has been carried on by two or three famous families of veterinary surgeons for generations.

WHITE DIARRHŒA IN CHICKS.

By B. F. KAUPP, M.S., D.V.S.

Spartanburg, South Carolina, Commissioner of Public Health, Bacteriologist and Pathologist, Board of Health.

The loss to American poultry raisers from white diarrhœa is greater than from anything else, perhaps greater than from all other infectious diseases combined. It strikes at the root of the poultry industry; no one can successfully conduct the business if he is unable to rear a reasonable number of chicks annually.

Without treatment the resulting mortality, when white diarrhœa has secured a foothold in a poultry plant, is extremely high, often reaching 90 per cent. of the season's hatch. The loss from white diarrhœa in dollars and cents is enormous, almost beyond calculation. It is widespread throughout the United States, and causes the loss of perhaps 10 per cent. of all the chicks hatched in this country. By proper measures the disease is fairly easily preventible, and my experiments indicate that a large number of the chicks afflicted with this disease will recover under proper treatment.

Causes.

There are two forms of white diarrhœa, due to two distinct causes: a bacillary form due to the *Bacterium pullorum*, a rather short, plump, rod-shaped germ with rounded ends; and a protozoal form due to the *Coccidium tenellum*. I have isolated the germ causing the disease from the liver, spleen, kidneys, and other organs of chicks dead of the bacillary form of the disease,

and in the coccidian form from the ulcers of the cæcum and the intestines.

Symptoms.

Bacillary Form in Young Chicks.—Drooping wings, ruffled feathers, sleepy appearance, huddled together, little or no appetite, abdominal yolk not properly absorbing; whitish or whitish-brown frothy discharge from bowel which adheres more or less to the vent fluff; eyes closed part of the time, and apparently no interest in life. "Peeping" much of the time, the appearance in many is stilty, abdomen prominent behind. In these cases after death one finds the yolk unabsorbed or only partially so. The intestines are more or less full. Late fall, winter, or early spring hatched chicks are freer from the disease than summer hatched. This may be explained by the fact that hens with diseased ovaries gradually become poorer layers as the disease processes advance, and hence only lay in late spring or early summer when Nature intends reproduction of birds. Finally the hen may cease laying.

Coccidian Form.—The symptoms, as I have seen them, are similar to those of the bacillary form, excepting, as a rule, the heavy death-rate takes place later.

Mode of Spread.

Bacillary Form.—Ovaries of laying hens, diseased, but still functionating, may be infected by the germ. The germ can be isolated, particularly from the yolk of at least some of the eggs formed in such an ovary. The chicks from infected eggs, as a result, have the disease more or less developed when they are hatched, as conditions which favour hatching also favour the multiplication of the germs to an extent that toxins (poisons) have already been produced in the young in sufficient quantity for the disease to at least manifest itself in a few hours after hatching. The whitish, frothy, pasty bowel discharge, more or less sticky, and having a tendency to "paste up the vent," from these chicks is laden with the germ, and others of the flock soon become infected from contaminated food picked up from the ground. In the former case chicks may begin to die soon after hatching, in the latter in from three to four days, a few dying each day. The death-rate is high, reaching in many cases as

much as 75 per cent. or more. Those that recover are stunted, and do not make satisfactory growth. The greatest loss is from the first few days to, in some cases, two or three weeks. It is probable that the carriers are chicks that have recovered, but which have established immunity, and still carry the organism (especially in the ovary) as the human typhoid carriers carry the germs of typhoid fever, in the infected kidneys and in bowel ulcers. These "carriers," having established an immunity, do not themselves succumb to the disease, and they rarely show any outward symptoms of it.

Coccidian Form.—The mode of spread of this form is at present problematical. It is possible that a chronic type of coccidiosis occurs in some birds and thus perpetuates and scatters the protozoa.

Post-mortem Findings.

Bacillary Form.—The liver in general is usually pale, showing areas of congestion (active and passive congestion and cloudy swelling). The yolk only partially absorbed, congestion of the intestines may or may not be present. Kidneys normal in size, but show congestion and cloudy swelling. Carcase more or less pale, and emaciated and anæmic.

Coccidian Form.—Upon *post-mortem* examination the conditions are found to be similar to those in the bacillary form, except there will be noted more or less congestion of the intestinal mucosa (lining), and ulcers in the intestines, principally the cæca. The cæca appear to contain considerable ingesta, and to be interfered with functionally. All stages of the *Coccidium tenellum* are observed in a mass of dying and disintegrating cells —the remains of the diseased mucous lining of the bowel. Repeated examinations have been made of healthy chicks killed for the purpose, and chicks dying from other causes, and thus far no case has shown these conditions.

Treatment.

Unsanitary conditions, spoiled feed, dirty stagnant water, improperly ventilated incubators, brooders, and building, or badly regulated heat, are factors in weakening the physical condition of chicks and favour ravages of diseases.

The most of our experimental work with various remedies

have been with the coccidian form. In one outbreak referred to above 80 per cent. of the first hatch of 2,000 chicks had died. We began trying to improve sanitary conditions, and administered various dilutions of permanganate of potash, copperas, and carbolic acid. The loss was unaffected. By this time the writer had examined many dozen birds in his laboratory, and in about 50 per cent. of the cases the *Bacterium pullorum* was isolated from the heart-blood, liver, spleen, and kidneys, and in every case the coccidian ulcers described above were observed.

These chicks began dying in numbers at about ten days of age, very few had died before that time, and from this period to the end of the third week the great loss occurred. After this time but few died, but those having the disease in light form were stunted and did not make satisfactory growth. With this data now before me I now began on another line of treatment.

During the past ten years I have used, to greater or less extent, dilutions of mercuric chloride (corrosive sublimate) as an intestinal antiseptic in chickens. This was used, in this outbreak, in a solution of 1 : 10,000, with sulphocarbolates of zinc, sodium, and calcium. The latter had not given the satisfactory results when used alone that it had in treatment of diarrhœa in colts and calves.

Jones (Cornell) has shown that a solution of 1 : 1,000 (one-tenth of 1 per cent.) bichloride of mercury will kill the *B. pullorum* in thirty seconds; a 1 per cent. carbolic acid solution requires five minutes in which to kill this germ; 1 per cent. creolin requires five minutes; 3⅓ per cent. lactic acid kills it in five minutes, and 5 per cent. carbolic acid kills it in thirty seconds. Mercuric chloride is therefore fifty times as effective against this germ as is carbolic acid. .

Instructions were given for the incubators (containng also the nursery trays) to be tightly closed and fumigated with formaldehyde gas as recommended under chicken cholera, before filling with eggs.

After the chicks were hatched they were not to receive any feed for forty-eight to seventy-two hours, as the yolk contained in their abdominal cavity will furnish food for that length of time, and an engorgement of the intestines might impinge on this part and interfere with its absorption by pressing on the absorbing vessels. The following dilution was to be kept before

them from the time of hatching to four weeks of age, and then given twice a week for the next few weeks: Zinc sulphocarbolate. 15 gr., sodium and calcium sulphocarbolate, of each 7½ gr., bichloride of mercury 6 gr., and citric acid 3 gr. This quantity was dissolved in a gallon of water. The result was that 80 per cent. of the next hatch was saved by this treatment.—*American Journal of Veterinary Medicine.*

BLOOD DISEASES OF BIRDS.

By B. F. KAUPP, M.S., D.V.S.
Spartansburg, South Carolina.

Under blood diseases come the septicæmias as apoplectiform septicæmia, septicæmia of geese, typhoid of fowls, and spirochætosis, all caused by germs which live and multiply in the blood-stream.

Apoplectiform Septicæmia in Chickens and Pigeons.

This disease in due to the *Streptococcus gallinarum*, which grows in long or short chains. It can be readily grown upon artificial media, and does nof liquefy gelatine. Experimental inoculations with this organism killed the following animals: chickens, mice, rabbits, and swine. It does not kill guinea-pigs or dogs. The germ multiplies in the blood.

Symptoms.—Apoplectiform septicæmia is rapid in its progress. Often birds die in from twelve to twenty-four hours after the first symptoms appear. Birds in which no symptoms of the disease had been noticed may be found dead under the roosts. The bird shows great prostration, feathers ruffled, loss of appetite, and the condition rapidly terminates in death. This disease often causes great loss to pigeon fanciers.

Post-mortem Findings.—The spleen is enlarged, dark and soft. Local necrosis is noted in the kidneys, spleen, and liver. Cloudy swelling is also noted preceding this state. Pneumonia may be present. The germs can be isolated in pure culture from any of the organs named.

Treatment.—Sanitation as directed for chicken cholera (May issue *Veterinary Medicine*, p. 262). If possible separate the

healthy birds from the sick. Vaccination with a vaccine made from the *Streptococcus gallinarum* has given good results. Sulphocarbolates compound may be tried as outlined in the article on chicken cholera referred to above.

Septicæmia of Geese.

This disease has been described as being caused by a germ which closely resembles the polar staining germ of chicken cholera. It multiplies in the blood.

Symptoms.—Geese are often found dead without having been noted to have been ill. The majority die very quickly, that is, within two or three hours after first symptoms appear. Occasionally one bird may live for several days, but finally dies.

Post-mortem Findings.—Small pin-point hæmorrhages may be noted, especially in the mucous lining of the intestines. Usually the digestive tract contains food in all stages of digestion, indicating that the disease is very rapid in its onset. Considerable mucus may be found in the mouth and throat. Inflammation may be noted in the liver, pericardium (heart sac), spleen, and kidneys.

Treatment.—Sanitary measures the same as those given for chicken cholera.

Fowl Typhoid. Infectious Leukæmia.

This is due to a short, plump germ with rounded ends. It is called the *Bacterium sanguinarium*, and is easily isolated from birds dead of the disease. It reproduces the disease in inoculated birds, multiplying in the blood.

Symptoms.—Anæmic or blanched appearance of the mucous membranes of the head with a dull appearance and great prostration, usually ending in death in about four days, is characteristic of this disease. In some cases the affected bird may live three to four weeks. Moore reports a decrease in red blood cells and an increase in white blood cells, the latter principally the polymorphs.

Post-mortem Findings.—The liver is enlarged and mottled with greyish patches due to areas of leucocytic invasion. The germ can be isolated from the internal organs. The kidneys show congestion which is recognized by the minute red lines. The intestines may be congested. The spleen usually appears

normal in size and colour. The red blood cells gradually diminish and a leucocytosis (an increase of the white blood cells) appears.

Treatment.—Prompt isolation of the healthy from the sick birds and sanitary measures as given for fowl cholera.

Spirochætosis.

This is a blood disease (septicæmia) due to a spiral-like microscopic germ which is supposed to be carried from bird to bird by means of the chicken tick. Fig. 1 shows a drawing of the germ. It is the *Spirochæta gallinarum*. The slide from which this drawing was made was kindly sent to the author by Dr. Balfour, of Khartoum, Sudan, Africa.

In the sick animal is noted a dulness, loss of appetite, rapid emaciation, head and tail down, and standing around, in corners

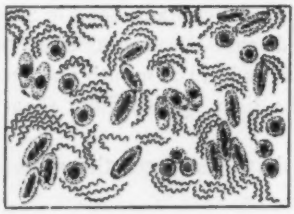


Fig. 1.—Drawing of *Spirochæta gallinarum* made from a blood smear; showing thrombocytes, leucocytes, red blood cells, and myriads of corkscrew-like spirochætes.

or on the roost, with eyes closed. Fig. 2 shows a photograph of a typical case. Note the attitude of head, tail, and body.

This disease was first recognized in Brazil; it is found in Africa and Europe; and a disease occurring in the southern part of the United States, where the chicken tick is abundant, has symptoms similar to those described above. So far as the author knows no definite work has been done to determine the true cause of this southern chicken disease.

This disease is most common among chickens, but also infects geese, ducks, pigeons, and sparrows.

Another form of septicæmia in chickens is caused by a comma-shaped germ, the *Spirillum Metchnikovi* or *Vibrio Metchnikovi*.

The symptoms are similar to those of fowl cholera, except that there is no, or at most but slight, elevation of the temperature. Diarrhœa is constantly present. Inflammation of the

bowel and enlarged liver (hepatitis) is noted. The disease has not been reported in this country.

Thrombosis.

A bird was sent to the laboratory with the history that it had been sick for several weeks. There was a partial loss of appetite, finally complete loss; the bird showed weakness and a gradual emaciation. The hen died in about two weeks after coming to the laboratory.

At autopsy there was noted great emaciation. All organs appeared normal except the circulatory system. There was

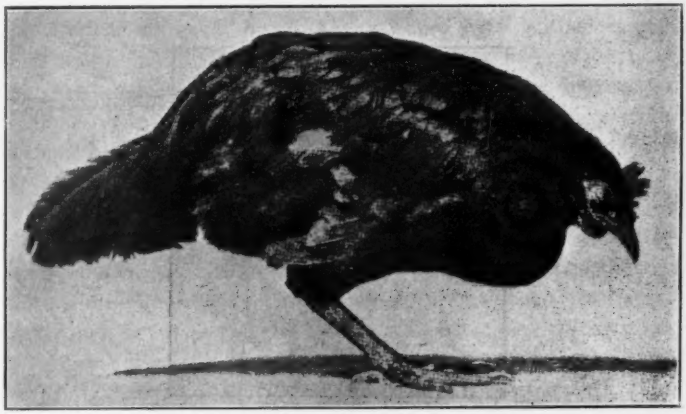


Fig. 2.—Photograph of hen suffering from acute spirochætosis—after Balfour.

thrombosis (complete plugging) of the right brachial artery (artery to right wing) and the same of the large vessel to the liver as well as of the iliac and femoral artery of the left side (artery to left leg). Upon microscopic examination they were found to be white *thrombi.*

Blastomycosis of the Pigeon.

There is a condition in pigeons in which there is a nodular mass in the upper portion of the œsophagus, due to a kind of yeast-like germ. It is termed blastomycosis, and is well illustrated in fig. 3. The squabs become affected early, and as the diseased or tumour-like area becomes larger, the bird is unable to eat or swallow. The loss in some breeding establishments is

considerable. The disease-area manifests itself as a lump in the throat or neck, which is easily felt.

Treatment.—It will be necessary to keep the premises thoroughly clean, constantly disinfected, washed with an antiseptic. The trays after each batch of squabs need to be cleaned and disinfected, as in fact does the entire building.

Some good results have been obtained by treating these squabs early with a solution of sulphocarbolates compound. Also other antiseptics recommended for chicken cholera. In squabs it will be necessary to use a medicine dropper and inject the solution into the mouth several times a day. If the disease has progressed very far, it is best to kill the squab and cremate it.

FIG. 3.—Blastomycosis of a pigeon.
A. The necrosing mass in which may be found yeast-like bodies.

COCCIDIOSIS IN WILD DUCKS.

Two wild ducks (mallards) were sent to the laboratory by the game warden of Colorado during the fall of 1910, with the history that they had been found dead on a reservoir, and that the wild ducks were dying in large numbers. A careful autopsy was held on these. There were small pearl-like nodules throughout the lung of one of the ducks. Both showed ulcerations of the mucous membrane of the intestinal tract. These ulcerations were numerous, as many as eight or ten in each bird, and extended the entire length of the intestines. Upon microscopic examination of these lesions, as well as of the lung nodules, coccidia were noted which resembled the *Coccidium tenellum.*

Clinical Articles.

VERGOTININE IN A CASE OF BROKEN WIND.

By G. MAYALL, M.R.C.V.S.

Bolton.

A BAY van gelding, "Prince," 13 years old, was badly affected with broken wind. Expiration was performed with a pronounced effort of the abdominal muscles and there was a marked depression along the costal arch, sinking in of the intercostal spaces and the usual barrel-shaped thorax. Difficulty in breathing was quite noticeable and the nostrils were dilated at each inspiration. There was an occasional weak cough and the animal's condition was poor. Quick work kept up for half an hour caused much distress in breathing. On auscultation we could hear weak vesicular breathing and a rather weak apex-beat of the heart. Percussion sounds over the lungs resonant and loud. Respirations at ease and before exertion were 18, pulse 44, temperature 100·4° F.

Treatment with vergotinine was commenced on September 23 and continued until November 3. Two and a half bottles of vergotinine have been used. The results have been gratifying. Respirations now, after fairly severe work, are quiet and regular. The former noticeable double movement of the flank is no longer discernible, the flapping of the nostrils has disappeared. The respirations after slight exertion are sixteen per minute. Whether the present favourable state of affairs will last is difficult to determine, but a horse rapidly becoming useless has been kept at work, its state improved gradually, and restored to its former usefulness. The general condition of the animal has visibly improved, and in appearance he now does the stable no discredit.

The composition of vergotinine seems to be strychnine, veratrine and ergotin, combined with glycerine. It is doubtful whether it will restore badly degenerated pulmonary tissue and capillaries.

French reports of its efficacy in cases of broken wind are more encouraging than German ones, but there seems no reason to believe that it is not a very good therapeutic agent, and perhaps the best that has yet been brought out for the treatment

of broken wind. In cases of bronchial catarrh it appears to be especially beneficial, but it is rather dear to dispense in the form in which it is made up at present. The usual dietetic rules adopted in cases of broken wind have, of course, to be observed whilst horses are being treated with vergotinine.

PECULIAR SYMPTOMS OF ILLNESS DUE TO EATING LARGE QUANTITIES OF FERN.

By Staff Veterinary Surgeon KINSKY.

The patient after riding exercise refused all food and only took water listlessly and unwillingly. The horse, usually cheerful and lively, was dull and sleepy. It lay prone on the straw, looked round frequently at the flank and yawned markedly. Pulse, breathing and temperature normal. Mucous membrane of the eyes, mouth and gums coloured yellow; peristalsis checked; dung hard and coated with yellow slime. Urine frequently passed with groaning and switching of the tail; colour of the urine yellowish red. The whole train of symptoms reminded one of the lupinosis described by Friedberger and Frohner. It was ascertained that at riding exercise the horse often stood in a wood for hours together and here ate large quantities of ferns with evident relish. Believing that no injurious effect would arise the horse was not hindered in the act.

Treatment.—The horse received a dose of physic, Priesnitz compress was put round his abdomen, clysters of soap and water and an arecolin injection were given. Copious, pulpy, bad-smelling dung was soon passed. The horse became livelier, appetite better, and icteric symptoms disappeared. After three days, however, the skin was covered with eruptions from the size of a 10-pfennig piece to that of a hand-plate. These elevations affected both sides of the neck, both shoulders and the front surfaces of both hocks. Stroking them with the hand caused the horse considerable pain. Skin increased in warmth, body temperature rose to 39° C. Green food and fermentation with acetate of lead and alum solution caused the lumps to partly disappear after a few days. Pustules, however, formed in the regions mentioned and were very painful in front of the hock, the joint being kept extended. Pieces of skin sloughed off, but

the places healed after being washed with antiseptic and treated with lanoline ointment mixed with powdered sugar and zinc oxide. Duration of illness about three weeks. Now, after about a year, only numerous light-coloured patches of skin remain.—*Zeitschrift für Veterinärkunde.*

RECURRENCE OF URTICARIA IN THE HORSE.

By F. MULLER, D.V.M.
Lilienthal.

At the beginning of August of this year a horse was brought in for treatment suffering from an extensive nettle rash. On the back and flanks the patient was covered with lentil to hazel-nut sized elevations. On the soft parts of the skin, such as the belly, inner surface of the limbs, sheath, rectum, ears, nose, eyes and lips, there were lumps as big as a strong man's fist. The head of the animal was deformed and resembled that of a hippopotamus. At the place where the halter passes over the bridge of the nose there was a deep indentation. I gave the patient a dose of physic, and ordered washings with Burow's solution. On the third day the skin elevations had disappeared and the head assumed its normal proportions. Soon, however, the rash reappeared, but only hazel-nut sized swellings occurred. The condition came and went. It varied to better and worse. This continued for five weeks, so that the animal could only be used very little for work. By the use of fresh oats and the use of calomel in full doses healing was accomplished and the horse has kept well since. The cause of the complaint and its recurrence was due to feeding on so-called Russian oats which the animal received previous to and during the illness.—*Berliner tierärzt. Woch.*

HYDROGEN PEROXIDE IN FISTULOUS WITHERS.

By J. FRUCHT.
Veterinary Surgeon of Nadworna (Galicia).

On July 16, 1913, a twenty-year-old bay gelding was brought to me with a discharging wound on the right side of the withers. The owner had bought it for 10 kronen on account of its skin, and asked me whether eventual healing of the wound was possible.

I examined the wound and found a two-crown piece loss of substance with inverted edges, the neighbouring skin for a hand-breadth being hairless and inflamed, and yellowish creamy pus flowed copiously from the wound.

I could push a probe in for 15 cm. on to rough bone. Treatment consisted in daily injections of a 1 per cent. solution of Merck's hydrogen perox. pur. With this treatment the quantity of pus declined daily, granulation proceeded rapidly, and on the thirteenth day the wound had closed. It was dusted with tannoform, and the horse discharged cured and fit to work on the fifteenth day.—*Oesterreichische Woch. für Tierheilkunde.*

STRYCHOTIN (LIQUOR STRYCHNINI-VERATRINI CUM ERGOTINO).

By Dr. SUSTMANN.

Dresden.

Dr. Sustmann has tried strychotin on seventeen subjects, of which two were broken-winded, eight had acute and chronic bronchial catarrh, four had rheumatism in the region of the shoulder and neck muscles, and one each with chronic laryngitis, with acute shoulder lameness, and with chronic pneumonia and pleurisy. The principal effect of the medicine, in Dr. Sustmann's opinion, is due to the veratrin, for this drug is not only an excitant for the cross-striped muscle and for the breathing centre, but also acts as an anti-paralytic and anti-rheumatic. The second effect is due to the strychnine acting as a nerve stimulant on the whole nervous system, and at the same time influencing the contractile elements of the lung parenchyma. The ergotin supports the treatment by first narrowing the bronchial vessels and then by increasing the contractility of the bronchial muscular fibres hindering the collection of mucus in the air canals.

The fourth component, glycerine, acts as a vehicle, and although not perhaps producing much effect, yet in human medicine various experimenters have found that teaspoonful doses of glycerine continued for some time have increased strength and body weight in weakly patients. The avoidance of large quantities of hay and of severe exertion are indicated whilst animals are under treatment.

Dr. Sustmann comes to the following conclusions as a result of his experiments:—

(1) Strychotin is a combination of drugs, whose value on the one hand depends on the effect of its single components, and on the other hand on its peculiar composition and dispensing. It is identical in its composition and effect with the French vergotinine.

(2) The effect of single drugs (ergotin, glycerine, strychnine and veratrin) contained in strychotin is enhanced by the combination, and a favourable collective effect is produced.

(3) The use of strychotin is therefore indicated where the possibility of recovery of the tissues is present. Advanced broken wind is therefore hardly to be expected to be cured.

(4) The best results obtained are in acute and chronic bronchial catarrh, in acute shoulder lameness and in rheumatic conditions of horses.

(5) The use of strychotin visibly improves the condition of animals and has no injurious by-effects.—*Deutsche tierärzt. Woch.*

OBSERVATIONS ON THE EFFECT OF SUNLIGHT ON THE HORSE AND COW.

By Dr. A. SALVISBERG.
Tavannes.

In human medicine the effects of the sun's rays as a healing factor is made use of considerably. Not only is the whole body submitted to sun baths but locally different diseases, such as lupus, ulcus crusis, carcinoma, &c., are illuminated by the sun. That a sunny neighbourhood is desirable as a sunny dwelling place for man has been known for a long time. Senderreger, in his "Advance Posts in the Care of Health," says that "Where the sun does not penetrate the doctor does." If sunshine has an influence on man it must also have an effect on animals.

The components of sunlight, such as radium, polonium, actininum, are very much used in France in veterinary medicine. They are present in Bones's radio-actives. As plaster, baths, and damp bandages this radio-active clay is used in generalized

eczema, in sprains, lymphangitis, tendonitis, and many other inflammatory symptoms.

Case 1.—In February, 1904, I treated a six-year-old bay mare for petechial fever. The therapy used was intravenous injections of argentum colloidol. In summer of the same year the long-recovered mare showed a number of swellings all over the body. The very anxious owner thought that purpura had occurred a second time, and urged me by telephone to come immediately. I recognized at once that I only had urticaria to deal with. It was a very hot summer day with a clear blue sky. The horse stood against a wall, turned with all his broad side to the sun. Whilst I was telling the anxious owner that the nettle rash had no connection with the previous illness all the skin elevations disappeared entirely. We were both greatly astonished at this phenomenon, and all the more so as we found that the side on which the sun did not shine direct was in no way altered. All these swellings were still present just as the others had been a few minutes before. With watch in hand I now measured that it just took five minutes for the previously shaded side of the horse to be completely rid of the elevations. The complaint did not recur.

Case 2.—In the summer of 1911 I was called to the village of S. by Herr K., saying that he had a cow affected with foot-and-mouth disease. I believed that the case would turn out to be actinomycosis, as it was in a neighbourhood where such cases are frequent. Examination revealed a solar dermatitis of the muzzle, the base of the teats, and the portion of the vulva not covered by the tail being also affected. The dermatitis had already advanced to necrosis, the skin was leathery, black, and was beginning to slough through its whole thickness at the edge of the subcutis.

It was noteworthy that this six-year-old cow had been driven on to the meadow since its youth, and had never previously been attacked by this disease.

This effect, according to present-day literature, is not a thermic one, but due to ultra-violet rays.

Case 3.—A thirteen-year-old draught stallion was driven about fifty-five miles on the hot summer day of June 23, 1912, and on arrival at the destination he refused food, took up a dog-sitting posture, commenced to stagger, rolled over, and died.

Autopsy made the next day gave the following result:—

Good *rigor mortis*, natural openings of the body closed. After removal of the skin the hindquarters showed anæmia as in slaughtered animals. The visible blood-vessels of the fore-quarters, but especially those of the neck and head, were chock-full of black, unclotted blood. Lungs enlarged, not collapsed, and œdematous. Tracheal mucosa cyanotic, with many ecchymoses. Trachea and bronchi filled with slightly bloody foam. The swelling of the larynx was so great that there was scarcely room to admit the little finger into the lumen (glottis œdema). In the cavities of the brain there was a small quantity of slightly blood-tinged fluid. The meninges were greatly injected; the brain substance showed no changes, no visible macroscopic hæmorrhages, but very damp. Concha cyanotic; region of the ethmoid bone very hyperæmic. *Diagnosis:* Heat-stroke.

Case 4.—On July 17, 1912, the seven-year-old horse of an undertaker yoked to a vehicle suddenly fell and died. *Post-mortem* showed a like result to the previous case, viz., heat-stroke.

Case 5.—A foal a year and a half old was found dead in a stable with a cement roof which had become very hot. *Post-mortem* showed a like result as in the two preceding cases.

The French distinguish *a sunstroke* that may arise through the direct influence of the sun's rays on the cranium. Further, a *heat-stroke* due to great heat and increase of body warmth. Hutyra and Marek oppose this view. But Marinesco has experimentally proved that the bad effects occur equally prominently if the animals are subjected to oppressive heat in quite dark abodes. According to my observations I must also agree with this view, since the foal under the cement roof was certainly not directly exposed to the sun's rays. *Post-mortem* showed just the same phenomena as in the two other cases due to direct sunlight.

P. C. Freer, in his treatise on "The Effect of the Sun's Rays on Man and Animal in Different Latitudes," says: "The colour of the animal plays an important *rôle*. The darker the colour, the earlier the heat-stroke temperature was reached."—*Schweizer Archiv. für Tierheilkunde.*

ALBUMINURIA IN THE HORSE, COW, AND DOG.

By Veterinary Surgeon KARL NAGEL.

The disintegration products of albumen, the albumoses, are not met with in physiological urine, in pathological urine their occurrence is a very frequently noticed symptom.

According to Finigan the following groups may be discerned:

(1) Alimentary albumosuria. This is caused by an abnormal direct transition of the albumoses of the gastro-intestinal canal into the blood; thus it occurs from partaking of great quantities of artificial nourishment which is rich in albumoses, in ulceration and diseases of the intestinal mucosa (ulcus ventriculi, carcinoma).

(2) Hæmatogenous albumosuria. It consists in decay of cells, namely, the leucocytes, in the blood itself, or in effusions of blood and pus from which the albumoses pass into the blood.

(3) Nephrogenous albumosuria. This may be met with especially in acute and chronic nephritis as a contemporary symptom of albuminuria. The transition of the albumose from the blood occurs as a result of better capability of dialyzation or it occurs in the urine from tissue decay or the transformation of albumens into albumose.

At the conclusion of his dissertation the author makes the following points:—

(1) In the urine of healthy domesticated animals (horse, cattle, and dog) one finds no albumoses.

(2) In sick animals one encounters albumosuria in purulent processes accompanied by destruction and decline of tissue.

(3) Albumosuria and fever are very frequently but not invariably associated.

(4) In locally limited and extensive tuberculosis of cattle albumosuria is wanting or is only slight. Albumosuria is therefore not valuable prognostically for this complaint, but is, perhaps, of slight value diagnostically.

(5) For the diagnosis of traumatic indigestion in cattle the high albumose contents of the urine is probably of value.—*Deutsche tierärzt. Woch.*

ON THE TREATMENT OF CANKER.

By Dr. OYEN.

Kostenblut.

Some unexpected cures in cases of canker have happened with me where other collegians have been treating cases. The following is my method:—

Careful removal of underrun horn, painting every day or other day once with pyroligneous acid, 2 parts, and formalin, 1 part. In obstinate cases powdering also with aerol. Pressure dressing also advisable.

In all cases treated sound horn has appeared in a short time. There has been no recurrence of the complaint. I shall be obliged if gentlemen having success with this treatment will communicate with me.—*Berliner tierärzt. Woch.*

CONTUSION OF THE BRAIN WITH SECONDARY AMENTIA AND RECOVERY.

By District Veterinary Surgeon WEOLE.

Ulefos.

A five-year-old cow which was in the fifth month of pregnancy stood with fore-limbs propped out, quite listless, and with her head sunk to the ground. Temperature was 39·2° C., pulse 32, slow but regular, respirations 12, heart-beat scarcely perceptible, corneal reflex absent, skin sensitive. The left fore-limb, which during auscultation was carried forward, remained bowed for several seconds after an assistant had let go of it. Some hay remained in the cow's mouth. It was pushed in in order to see if the cow would eat it. As soon as the head was lifted up for examination mastication began vigorously and then suddenly stopped. In chewing the jaws were not worked laterally, but in a vertical direction. Then the animal became restless, pressed forward and backward in the stall, ran against the wall, and fell down. In the course of a quarter of an hour she got up again and seemed quite normal. She was let loose on to a grass paddock and began to move in a circle to the right, fell down, and was brought back into her stall.

She was treated for brain disturbance, and it was suspected that there was hæmorrhage with external pachymeningitis.

Prognosis was doubtful. The cow was given a drastic

purgative, and the occipital region was dressed with stimulating liniment cum euphorbio, and in the next visit 1·0 c.c. of hydrochlorate of pilocarpine was injected.

Little could be learnt as to the cause of the trouble, but it was ascertained that three weeks after a fight with another cow bleeding from the nose had set in. This was quite insignificant, and the cow had seemed quite lively. It was found that one horn had struck the nose, and the other the back part of the head.

The condition of the animal, which during the illness gave 6 litres (1¼ gals.) of milk daily, gradually improved, and after three weeks she all right again.—*Deutsche tierärzt. Woch.*

INTESTINAL CHANGES IN EMPHYSEMA BULLOSUM OF SWINE.

By A. MAJA.

Most authors consider that in emphysema bullosum of swine the intestinal mucosa has a normal appearance or only shows the symptoms of a slight catarrh. Rossi also found inflammation of the small intestine and congestion in the abdominal and thoracic organs, and noticed chiefly that the formation of the bullæ characterized the enteritis, which occurs mostly in summer. Roth, Heydemann and Cadéac have also found changes in the mucosa. Maja's observations were made on twenty swine that were slaughtered at the Milan abattoir in the best of health, and which, on *post-mortem*, showed typical lesions of emphysema bullosum. In the lymphatic nodules the bullæ were so numerous that they were swollen to double their size. Vesicles filled with blood were never found. Round the small intestine in many cases there were so many bullæ that the lumen of the intestine was narrowed. On microscopical examination he found numerous vesicles in the submucosa and in the muscularis of the intestinal wall, many also in the mucosa itself; in most cases there was intestinal catarrh here and there, also small pus foci, the mucosa of the intestine was so largely infiltrated with cells that often the gland structure was hidden. In some cases the mucosa showed evidence of necrosis and ulceration.—*Oesterreichische Woch. für Tierheilkunde.*

FURTHER NOTE ON "A CONTAGIOUS DISEASE OF POULTRY."

By R. H. SMYTHE, M.R.C.V.S.
Redruth.

I HAVE made further investigation in the outbreak of disease amongst poultry, which I recorded in the VETERINARY JOURNAL of last month, and I find that the deposits on the oral mucous membrane contain a mycelium and some free bodies, which are probably spores, in addition to various other organisms.

It appears to correspond, therefore, with, and I have no doubt that the disease is "Parasitic Stomatitis," caused by the mould fungus (*Monilia candida*), as described by Friedberger and Fröhner, in *Veterinary Pathology*, vol. i.

Canine Clinicals.

A SUCCESSFUL APPLICATION OF THE PRINCIPLES OF AUTOVACCINATION IN A DOG.

By J. H.
London.

ABOUT the middle of last May the subject, a large bulldog, was bitten in the submaxillary region while fighting. A large abscess formed at the site and was lanced and the cavity irrigated with chinosol solution (1·5 gr. per oz.). The external wound was allowed to heal too rapidly, with the result that about a week later an extensive subcutaneous suppuration was discovered, extending from the original abscess to about the front of the right scapulo-humeral joint and involving all the subcutaneous tissue of the right side of the front of the chest. An opening was made at the lowest point of the swelling an inch or two from the right scapulo-humeral joint in the direction of the middle line, and the pus was removed. Irrigations with chinosol solution were made daily, and after nearly a month of treatment the wound healed up, leaving a contracted fibrous cord from the submaxillary region to the lower part of the front of the chest, causing some disfigurement. Within a week after this the right forearm became greatly enlarged, hot, and painful, and burst at three points, one opening being behind the carpus and the other two close together on the inner aspect of the forearm. From then onwards various methods of treatment were tried without success to obtain disinfection and healing of the wounds,

Irrigations with solutions of chinosol, Jeyes' fluid, corrosive sublimate (1—1,000), and hydrogen peroxide, proved useless. Poulticing and iodine ointment with pot. iod. internally were tried without any improvement resulting. Systemic disturbance was remarkably slight throughout, the animal remaining bright and active and having a good appetite, though somewhat emaciated and slightly lame on the affected leg.

At the end of August the three wounds in the forearm were discharging a dark-greenish pus of the consistency of glycerine. There was not very much swelling of the forearm, but it was tender on manipulation, and the infection had travelled along the tendon sheaths as well as throughout the subcutaneous tissue of the forearm. Smears from the pus were examined by Professor Wooldridge, and showed a mixture of pyogenic organisms, staphylococci predominating. He recommended a trial of auto-vaccination.

Some of the pus was therefore drawn from the forearm with a sterile hypodermic syringe, using a needle of fairly large diameter. A vaccine was prepared from this by Mr. J. B. Buxton, M.R.C.V.S., and contained 100,000 organisms per cubic centimetre. Vaccination of the subject was commenced about the beginning of October. Injections were made every six days, the doses being 1 c.c., 1½ c.c., 2 c.c., 2 c.c., 2½ c.c., 2½ c.c. and 3 c.c., in that order. After the first injection a hot painful swelling, which had begun to form over the left shoulder, disappeared, and after the second injection a slight diminution of the discharge from the forearm was noticed. The dog did not go off his food and appeared as bright as usual. The day after the third injection the dog went off his food, showed a disinclination to walk and remained depressed for two days, and there was increased tenderness of the affected area. No systemic reaction followed the fourth injection, but two of the wounds closed and the swelling diminished somewhat. Systemic reaction did not follow any of the subsequent injections, but the one remaining wound on the inner aspect of the forearm persisted in remaining open and discharged slightly, and a careful examination revealed a very thin strip of straw, about 1½ in. long, in the subcutaneous tissue immediately above the wound. This was removed and the wound healed rapidly. As all local remedial measures and the administration of pot. iod. was stopped when vaccine treatment was commenced, and the improvement only commenced

simultaneously with the vaccine treatment, there can be no doubt that the recovery of this subject in six weeks was entirely due to the vaccine, when ordinary methods of treatment had failed to effect a cure after over four months' trial.

DOUBLE INTUSSUSCEPTION IN THE DOG. ATTEMPTED OPERATION.

By SIDNEY SMITH, Jun., M.R.C.V.S.
Lowestoft.

A SIX-MONTHS-OLD fox-terrier puppy, which I had been treating for some days for diarrhœa and sickness, was recently brought to me with about 3 in. of prolapsed bowel hanging from the anus. I returned this eversion, but found that the lower part of it would only be pushed just inside the rectum, and there were unmistakable signs that, if left alone, the prolapse would speedily recur. Suspecting intussusception, I manipulated the dog's abdomen, and plainly felt an intestinal mass considerably thicker than the normal. As a forlorn hope I decided to attempt an operation, which, I may say at the outset, was unsuccessful.

Anæsthesia was brought about in the usual way with 1 gr. of morphia hypodermically. Having opened the abdomen in the middle line, I found that my diagnosis was correct, and that, in fact, there was a double intussusception about 5 in. long. The terminal portion of the colon was doubled on itself near the rectum, and there was a much more pronounced doubling anterior to this with constriction of the bowel and engorgement of the mesenteric vessels. After considerable labour I succeeded in completely reducing the intussusception, but, having done so, I found that owing to stricture and laceration of the muscular coat about an inch of bowel would have to be excised. Having done this, I united the cut ends in the usual way, using gut sutures.

Closing the muscular wound with gut, and the skin wound with silk, completed the operation. The puppy rallied slightly after the operation, but only for a time, and death supervened in about eight hours.

As a matter of fact the dog was exceedingly weak before the operation was started, and I embarked on the task not with the idea of performing some brilliant surgical feat, but of obtaining useful experience of an operation which under more favourable conditions might in future cases be attempted successfully.

My chief object in recording this case is to emphasize the fact that prolapse is so often associated with intussusception, and that what may appear at first sight to be merely everted rectum is in reality intussuscepted colon. If this is recognized at first, so that no time is wasted on sutures of the anus or paraffin wax injections, there is naturally much more chance of a radical operation being successful.

In a previous case I diagnosed eversion of the rectum, used sutures, &c., and only discovered the intussusception at *post-mortem*. In this case I diagnosed the intussusception after prolapse, but was unsuccessful with the operation.

I am hoping that in the next case I may be able to "spot" the condition still earlier, and obtain that satisfactory result which is so encouraging to the operator.

Note on Autoserotherapy.

By Veterinary Surgeon P. HAAN.

Revue Générale.

Autoserotherapy in serofibrinous pleurisy is not a new method of treatment. It is also much less utilized in veterinary medicine than in human medicine, where it arose at the time when injections of tuberculin were expected to cure tuberculosis. In the year 1899 Dr. Breton used pleural liquid in place of tuberculin, considering that this exudate ought to contain tuberculin. He obtained some rapid cures by injecting into the subcutaneous connective tissue the pleural liquid obtained by exploratory puncture. This method was taken up by Gilbert, of Geneva, then by a number of doctors, who, as a rule, obtained excellent results.

In the horse the etiology of pleurisy is totally different from that of man; in the latter it is often tuberculous, whilst in the horse it may be glanderous or depend on pasteurellosis. It was nevertheless indicated to make some experiments, and Haan tried it during the year 1909 in about twenty cases in remounts. He practised thoracentesis and then injected about 4 c.c. of the liquid withdrawn into the subcutaneous connective tissue; this liquid, even where it contains some bacteria, is reabsorbed with great facility. One observes an immediate improvement in the patients, followed by a rapid cure. An intense diuresis is observed, followed by absorption of the exudate, and this diuresis may be interpreted as a favourable symptom. In ordinary cases resorption is complete in six to ten days.

This method is certainly not infallible, but deserves to be introduced into practice because it produces almost miraculous cures in apparently hopeless cases. It is absolutely harmless. The technique is most simple; it is that of thoracentesis followed by subcutaneous injection.—*Schweizer Archiv für Tierheilkunde.*

Reviews.

Clinical Bacteriology and Vaccine Therapy for Veterinary Surgeons. By W. Scott, F.R.C.V.S. Demy 8vo. Pp. xvi + 222; with 12 plates and 37 figures in the text. Price 7s. 6d. net.

We find from the Register of the Royal College of Veterinary Surgeons that it is nineteen years since the author of this work qualified as a veterinary surgeon, and we venture to say that by keeping in touch with scientific researches and investigations he must be as far in advance of many of his contemporaries at college as Lister was of Percival Potts, the fashionable surgeon of a hundred and thirty years ago.

If there are fifty reasons why a country practitioner cannot keep accurate clinical records (and the ledger would head most men's lists) there must be five hundred reasons why he should not publish them in book form. And Mr. Scott has done much more than this, he has made excellent researches in perhaps the most difficult and exacting branch of therapeutics. He has studied serum and vaccine therapy and the nice technique of these subjects at the famous laboratories at St. Mary's Hospital. He has with much care and ingenuity fitted his own laboratory, studied his own cases—the everyday cases of the country veterinary surgeon—from this new point of view, and recorded his results.

The first sections of the book are devoted to technique—the laboratory, microscope fittings, instruments, culture media, sterilization, &c. This we find the weakest part of the work, in that the author has omitted many of those small but essential precautions which become second nature and appear insignificant to the man constantly engaged in such work, but which if disregarded will lead the tyro into trouble if he has had no real laboratory experience. Each worker, or each laboratory, has, or develops, its own "short cuts" and methods, and we find the description of the preparation of sterile swabs ready to take to a case not very clear and the making of anaerobic cultures is not very lucid—a Buchner's tube is a simple, and not costly, article.

This section is followed by a list of the commoner pathogenic bacteria and their morphological staining and cultural characters, and then the actual cases met with by the author in the field and treated with vaccines of his own preparation. This will be to all readers exceedingly interesting and instructive. In notices respecting new books the stock phrase is "Every veterinary surgeon should have this work on his book-shelves," but we do not hesitate in saying that every country and town practitioner should read and re-read the sections dealing with abscesses and their treatment, for many of us are sadly out of date with regard to injections of caustics and antiseptics.

Few will raise the enthusiasm of the author on the subject of vaccines, but all will reap benefit from the new line of thought

suggested—new, that is, to the veterinary practitioner when applied to his everyday cases.

Many having experience will disagree with the doses of dead bacilli given. We believe that good results have been obtained with much smaller doses, especially with the dog.

Swine fever is well treated, and, in view of the lack of success following the present English methods of treatment, it is well to be acquainted with the lines adopted in Holland, which the author has investigated at Rotterdam.

Many dissentients will be found to some of the author's views and he may receive severe criticism, but he has done the profession a good service.

The Report upon the State of Public Health in the City of Dublin for the Year 1912.

We have received the Fifty-first Annual Report, *i.e.*, for the year 1912, by Sir Charles A. Cameron, Chief Medical Officer of Health for the City of Dublin. Mr. Andrew Watson, M.R.C.V.S., as is well known, is the veterinary surgeon to the Public Health Committee, and Sir Charles Cameron reports that his time was so fully occupied with the outbreak of foot-and-mouth disease that he was unable to give as much attention to the udders of dairy cows as he usually gives them. It is pointed out in the Report that tuberculosis of the udder is by no means the only diseased condition that demands interdiction of the milk; for instance, a common pathological condition of the cow's udder is mastitis, not generally recognized by others than veterinarians. Sir Charles Cameron points out to the Health Committee that milk from such an udder, if used for human consumption, would be highly dangerous. He reminds us that Professor Holst, of Christiana, found that milk from an inflamed mammary gland caused acute catarrh of the stomach in four adults and four children.

We learn from this Report that the inspection of food in Dublin is conducted by Mr. Andrew Watson, four meat inspectors, and by Sir Charles Cameron himself. No less than 136,000 lb. of unsound food were confiscated by the Corporation Abattoir during the period under review, and 40,000 lb. were voluntarily surrendered. The able veterinary surgeon of the Corporation, as he is described in the Report, paid no less than 18,561 visits to slaughter-houses, shops, and hawkers' stands, &c. The Report is a very complete one, and redounds to the credit of the Public Health Department of Dublin. It is only to be regretted that the social and economic conditions of the Irish capital are such that public health authorities in all departments seem like good men struggling against adversity in the task daily and hourly before them.

From Southern Rhodesia.

We have received the Report of the Chief Veterinary Surgeon, Southern Rhodesia, Mr. J. M. Sinclair, M.R.C.V.S., for the year

1912, and also a Report from the Veterinary Bacteriologist, Mr. Llewellyn E. W. Bevan, for the same period. African coast fever still causes considerable trouble in the territory under survey, though the outbreaks are happily diminishing in quantity. Five fresh outbreaks occurred during the year, compared with eight in the previous year and eighteen in 1910. Mr. Sinclair expresses the opinion that the cattle owner who fenced his farm and dipped his cattle regularly need not fear coast fever, and regular dipping is enforced in all infected areas. Anthrax is not unknown, and there was an outbreak of contagious pleuro-pneumonia. No case of glanders occurred during the year, though rabies is not infrequent. Very useful work is being done in the Government Veterinary Laboratory by Mr. Bevan, and on the whole we congratulate the Department on its therapeutic and prophylactic activities, and on its admirably clear reports.

THE HUNTING MEMORIAL FUND.

A MEETING to inaugurate this Fund was held at the Royal College of Veterinary Surgeons, 10, Red Lion Square, W.C., on Thursday evening, November 13, 1913, when Professor James Macqueen, Royal Veterinary College, was elected Chairman, and Mr. Henry Gray, Secretary and Treasurer.

Letters were read from Messrs. Cameron (Berwick-on-Tweed), Emerton, George Edward King (Abingdon), E. Wallis Hoare, Sydney Villar, and others.

It was decided to erect a memorial stone upon Mr. Hunting's grave, and also to purchase an adjoining plot of ground. As to other suggestions regarding a prize or an annual lectureship, it was decided that they be left open to some future time.

A General Committee was formed as follows: The Presidents and Secretaries of all existing veterinary societies in the British Empire, the members of the Council of the Royal College of Veterinary Surgeons, the principal and professors of all the veterinary schools in the British Empire, all the veterinary officers of the British Board of Agriculture and Fisheries and of the Irish Department of Agriculture and Technical Instruction, all the officers of the Army Veterinary Service in the British Empire, and all officers of the Indian Civil Veterinary Department.

Ultimately a Sub-Committee was formed, five members of which were to form a quorum. It was constituted as follows: Sir John McFadyean, Sir Stewart Stockman, Major-General

Smith, Veterinary-Captain Graham Rees-Mogg, 1st Life Guards, and Messrs. Hugh Begg, W. Roger Clarke, Joseph Emerton, E. Wallis Hoare, Robert Crystal Irving, H. A. MacCormack, and Professor Wooldridge, Professor James Macqueen, and Mr. Henry Gray being *ex-officio* members.

The next meeting of the Sub-Committee will take place on December 12, at 7.30 in the evening, at the Royal College of Veterinary Surgeons, 10, Red Lion Square, W.C. A meeting of the General Committee will be held in January on the evening of the day of the Royal College of Veterinary Surgeons' Committee meeting.

The following subscriptions received were announced:—

	£	s.	d.
Mr. Joseph Emerton, Wandsworth	5	5	0
Mr. Henry Gray, Upper Phillimore Place ...	5	5	0
General Smith, Blackheath	3	3	0
Mr. J. W. Brownless, Kensington	2	2	0
Mr. W. Dellagana, Southampton	2	2	0
Mr. Wallis Hoare, Cork	2	2	0
Mr. D. Imrie, Glasgow	2	2	0
Mr. W. Watts, Fulham	2	2	0
Mr. Granville Gray, Kensington	1	1	0
Mr. Chas. Roberts, Tunbridge Wells ...	1	1	0
Mr. Albert Hastings Farrow, Kensington ...	1	1	0
Mr. Wm. Squire Stevens, Westminster ...	1	1	0
Mr. Marshall, Denmark Hill	1	1	0
Mr. Henry Bower, M.R.C.V.S.	1	1	0
Mr. W. J. Mulvey, King's Road, Chelsea ...	1	1	0
Mr. S. W. Pratt, Shanghai, China	1	1	0
Mr. George Urquhart, Mayfair	1	1	0
Mr. A. P. Burgon, Elmhurst, Haverhill ...	1	1	0
Mr. H. Smith, Worthing	1	1	0
Mr. J. Carter, 128, Goswell Road, E.C. ...	1	1	0
Mr. J. Bell, Carlisle	1	1	0
Mr. J. B. Martin, Strood	1	1	0
Mr. J. A. Lawson, Manchester	1	1	0
Mr. F. Hobday, Kensington	1	1	0
Mr. Pugh, Buckingham Palace Road ...	0	10	6
Mr. G. O. Rushie Grey, R.V.C.	0	10	6
Mr. A. Payne, Weybridge	0	10	6

SUBSCRIPTIONS RECEIVED UP TO 7 P.M., NOVEMBER 26, 1913.

Amount already acknowledged	42	10	6
Col. Chas. Rutherford, A.V.C., Kincardine, Southampton Road, Salisbury	1	1	0
Mr. Wm. Roots, M.R.C.V.S., 12, Winchester Street, Borough Market, S.E.	1	1	0
Mr. John F. Healy, M.R.C.V.S., Midleton, Cork	1	1	0
Mr. A. J. Sewell, M.R.C.V.S., 55, Elizabeth Street, S.W.	1	1	0
Mr. George Edward King, M.R.C.V.S., The Vineyard, Abingdon, Berks	1	1	0
Mr. J. H. Carter, President R.C.V.S., Church Street, Burnley, Lancs.	2	2	0
Mr. Percy Gregory, M.R.C.V.S., 7, The Terrace, Tonbridge	0	10	6
Mr. Wm. Freeman Barrett, Barrister-at-Law, Fountain Court, Temple, E.C.	2	2	0
Mr. H. Blount Nixon, M.R.C.V.S., 25, Withersfield Road, Haverhill, Suffolk ...	0	10	6
Mr. Robert Bryden, The Drive, Seaham Harbour	5	5	0
Major E. B. Bartlett, A.V.C., 57, The Pryors, Hampstead, N.W.	1	0	0
Mr. Chas. W. B. Sikes, M.R.C.V.S., 20, Jury Street, Warwick	1	1	0
Major F. W. Wilson, A.V.C., Frimley Lodge, Frimley Green, Farnborough, Hants ...	1	1	0
Capt. R. W. Millard, A.V.C., R.A. Mess, Kildare	1	1	0
	£62	8	6

In the meantime subscriptions may be sent to the Hon. Treasurer and Secretary, Mr. Henry Gray, 23, Upper Phillimore Place, London, W. Cheques should be made out to the "'Hunting' Memorial Fund," and crossed "City and Midland Bank, Ltd., Earl's Court Road Branch."

ERRATA.

In the review of Hutyra and Marek's "Special Pathology and Therapeutics of the Diseases of Domestic Animals" on p. 539 of last month's issue a grotesque error of typography appears in connection with the names of the English translators of the work. The names of Messrs. Leslie Sheather and G. Mayall are followed in each case by the word "Molest." This should, of course, have been M.R.C.V.S. Dr. Mohler's name also is wrongly spelt "Mobler."

Books and Periodicals, &c., Received.

Journal of the Royal Army Medical Corps; L'Hygiène de la Viande et du Lait; Revue Générale de Médecine Vétérinaire; Der Tierarzt; Zeitschrift für Veterinärkunde; Berliner tierärztliche Wochenschrift; Osterreichische Wochenschrift für Tierheilkunde; Revista de Medicina Veterinaria; Board of Agriculture and Fisheries; Department of Agriculture and Technical Instruction for Ireland; Agricultural Journals for the Union of South Africa and for Rhodesia; American Journal of Veterinary Medicine; Memoirs of the Department of Agriculture in India; Annual Report Punjab Veterinary College, C.V.D.; Annual Report Veterinary Pathological Laboratory, Nairobi.

NOTE.—All communications should be addressed to 8, Henrietta Street, Covent Garden, London, W.C. Telephone, 4646 Gerrard. Telegrams, "Baillière, London."

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